UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00900

October 31, 2003

Mr. Lawrence C. Evans
Chief, Regulatory Branch
Portland District, Corps of Engineers
P.O. Box 2946
Portland, OR 97208

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project, Douglas County, Oregon (Corps No. 200300495)

Dear Mr. Evans:

Enclosed is the biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of permitting the proposed I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project in Douglas County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Oregon Coast coho salmon *(Oncorhynchus kisutch)*. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the potential for incidental take associated with this action.

This document also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR part 600).

If you have any questions regarding this consultation, please contact Jim Collins of my staff in the Oregon Habitat Branch at 541.957.3389.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Molly Cary, ODOT
Chris Hunter, ODOT
John Raasch, ODOT

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project
Douglas County, Oregon
(Corps No. 200300495)

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	October 31, 2003
Issued by:	F.r Michael R Course _____ D. Robert Lohn Regional Administrator
Refer to:	**2003/00900**

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1. INTRODUCTION

1.1 Background

On August July 14, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) and a request from the U.S. Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 formal consultation for the I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project. The Oregon Department of Transportation (ODOT) proposes replacement of the bridges, which cross the South Umpqua River near the town of Roseburg, Oregon. This biological opinion (Opinion) is based on the information presented in the BA and discussions with the applicant.

The COE determined that Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), and protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). The COE, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect OC coho salmon.

This Opinion is based on the information presented in the BA and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the actions to remove the existing structures and construct a new structures are likely to jeopardize the continued existence of OC coho salmon. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

1.2.1 Project Purpose

This project is designed to replace the Shady Bridges, which carry Interstate 5 (I-5) over the South Umpqua River, and the I-5 overcrossing, which crosses over Highway 99. I-5 is the major transportation route along the west coast, connecting Washington, Oregon and California.

The existing northbound (NB) Shady Bridge was constructed in 1955, consists of seven spans, and is 945 feet long. The existing southbound (SB) Shady Bridge was constructed in 1964, consists of seven spans, and is 974 feet long.

These bridges have the following major deficiencies: (1) Approach deficiencies, (2) structural cracking, (3) deck deficiencies, (4) scour issues, and (5) deficiencies in bridge rails and transitions. The NB bridge has been load restricted due to shear cracking in the girders and recently received temporary emergency repairs. The Highway 99 over-crossing also has shear

cracking in the girders. The new bridges would be constructed to carry three lanes of traffic, to support future expansion of I-5 to six travel lanes, but would be striped to the current two lanes of traffic.

1.2.2 Staging and Access

The most likely staging area would be to the northeast and northwest of the Shady bridges. This area is an open field and used primarily to graze livestock. Another area to the southeast and southwest that could be used for staging is owned by ODOT and Douglas County. The Contractor may elect to store equipment and materials off site at a different location for security reasons. All potential staging areas would be at least 150 feet from any waterway.

1.2.3 Construction Sequencing

Construction would begin by constructing the temporary work bridge between the existing bridges crossing the South Umpqua River. The next phase would consist of building the pile-supported falsework platforms for the new bridges. Once the falsework platforms are constructed, construction on the NB structure would begin. Once the NB structure is completed, the existing NB bridge would be removed. The new SB structure would be constructed in the approximate location of the existing NB bridge. The final stage would be to remove the existing SB structure.

During the construction of the new bridges spanning the South Umpqua River, the existing highway 99 overpass will be replaced. This crossing is approximately 600 feet to the south of the Shady Bridges.

1.2.4 Temporary Work Bridge

A temporary work bridge across the South Umpqua River is required to construct the new bridges. The work bridge would most likely be between the existing bridges and would remain in place for the duration of construction. The work bridge would be constructed of piles, pile caps, girders and decking. Due to the very dense soil conditions and exposed bedrock at the project site, it is anticipated that the piles would require spread footings. To minimize impacts to the South Umpqua River, the minimum span length of the work bridge would be 50 feet with a width of approximately 26 feet. This span length would meet the minimum opening required for water traffic and would provide three openings in the middle of the river. Pile columns would most likely be steel H-piles or steel pipe piles with a dimension ranging from 14 to 24 inches. The spans lengths used by the Contractor, the bridge width, and the size of piles used determines how many piles will be in the river. It is estimated that a maximum of 84 piles, of which 42 would be within the ordinary high water mark (OHWM), would be required to support the work bridge. Once the pile columns and steel cap are connected, the beams and decking would then

be placed to finish the work bridge. Construction of the work bridge would start from the north bank and work across the river, one span at a time, with the crane sitting on the previously-completed span.

1.2.5 Falsework Platform

In addition to the main work bridge, it is likely a falsework platform for each of the new bridges would be needed. The falsework platforms would be directly beneath the new bridges. The falsework platforms would be used to construct the superstructure falsework. Due to the additional weight of the haunch at each interior bent and the height of the falsework, the minimum span length of the falsework platform near the haunch sections would be 25 feet. The haunch section is defined as a minimum distance of 50 feet from the face of the bent column. The span length would increase to at least 50 feet once falsework is beyond the haunch section of the bridge. The construction of the falsework platform would be similar to the temporary work bridge. It is estimated that up to 195 piles for each bridge would be required below the OHWM to construct the falsework platform. These piles would be contained within approximately 13 temporary bents.

1.2.6 New Bridge Construction

Bents 1 and 5 on both of the new bridges would be outside the OHWM on the roadway embankment. No temporary shoring along the riverbank would be required to keep the fill from encroaching on the permitted in-water work area. In addition, there would be no riprap required for scour protection of the end bents.

Due to the soil conditions in this area, Bent 1 would likely consist of a double row of steel H-piles or pipe piles 18 to 24 inches in diameter, with a concrete footing, abutment wall, and wingwalls. Bent 5 would likely consist of a concrete spread footing, abutment wall, and wingwalls. The footing would be constructed on the existing ground to support the abutment wall and wingwalls. Concrete poured for the footings, abutment walls, and wingwalls would be contained in forms.

The interior bents would each consist of two drilled shafts approximately 11 feet in diameter. Bent 2 would be above the OHWM on the north bank of South Umpqua River. Bent 3 would be below the OHWM, near the north bank. A web wall would connect the two columns at Bent 3 to prevent the bent from collecting debris. Bent 4 would be just above the OHWM on the south bank of the river.

Construction of all three interior bents would be similar. A drill casing would be placed for each drilled shaft. The area inside the drill casing will be drilled to the required elevation. The excavated soil would be collected and disposed of off site. After excavation, concrete would be

placed in each drilled shaft using a tremie pour, which uses a pipe to place the concrete under water. The green concrete-contaminated water inside the drilled shaft would be pumped out, treated, and disposed of in an approved manner.

No temporary shoring will be required at Bent 2, but may be necessary at Bent 4 to keep the excavations from encroaching on the permitted in-water work area. The need for shoring will depend on the rock condition encountered. A containment system will be placed near the toe of the steep bank above OHW elevation. A bladder system or other engineer-approved containment system would be used around the drilled shaft at Bent 3 to minimize adverse effects. The area within the containment system may need to be de-watered, depending on water levels.

Once the falsework platform is in place, construction of the new concrete box girder bridge would start. The columns for this falsework would be above the OHWM or on the falsework platform over the river. Span lengths for the falsework could vary, with 7.6 m (25 ft) as the minimum practical span. Cap beams and decking would then be constructed.

The superstructures of the new bridges would consist of a cast-in-place, post-tensioned concrete box girder. This type of construction allows for longer spans, reducing the number of permanent piers required in the river. Once the falsework piles, cap beams, and decking are constructed, the forms would be built, reinforcing steel placed, and concrete poured. The box girder concrete is poured in three separate sections, consisting of the bottom slab, the longitudinal and transverse stems, and the top deck. The structure would then be post-tensioned longitudinally and the ducts grouted. After the post-tensioning is complete the falsework would be removed.

1.2.7 Bridge Removal

The existing NB structure would be removed in its entirety after the new NB structure has been constructed. The north approach spans of the existing SB structure will be removed, keeping intact the main steel truss span and the south approach spans. It is anticipated the majority of the removal operation would take place outside the in-water work window. The removal of Pier 1 and Bents 5 and 6, which are below OHWM, would take place during the extended in-water work window in 2006.

After the new SB structure has been constructed, the remaining existing SB structure would be removed. This includes the main steel truss span and the south approach spans. The removal operation would take place in 2007.

The steel truss sections of the existing bridges would most likely be lifted out with a crane to place it on the work bridge or the approach spans where it can be dismantled and hauled off site. All debris would be contained and kept from entering the channel.

1.2.8 Stormwater Collection and Treatment

The project would add approximately 2.6 acres of impervious area. Under existing conditions, there are approximately 15.4 acres of impervious area within the project limits. Currently all stormwater within the project limits drains directly to the South Umpqua River. Under existing conditions, drainage from the existing bridges is discharged through scuppers directly into the river. Drainage from the south is predominately through roadside ditches or culverts before being discharged into the river approximately 262 feet north of the existing bridges. Drainage from the north sheet flows off the roadway, down the fill slopes to the ditches at the base of the abutment slopes. This water flows south through vegetated ditches, eventually discharging into the river.

Those portions of the project that are not on the new bridge structures would continue to drain to roadside ditches or to median ditches. Bridge drainage would be collected in deck drains with a total of six deck drains on the NB river structure and nine on the SB river structure. Drainage from deck drains will be conveyed in 8-inch pipe along the bridge structure and down the nearest bridge bent. Bridge drainage would then discharge to a water quality treatment facility.

Water quality treatment would be provided in an extended, wet detention pond north of the bridge. The proposed pond would have two cells, with a pre-settling cell at the north end. Water would be discharged via a rock weir into an outflow ditch. The weir is designed to match the existing two-year design flow, with an overflow sized for the 100-year event.

1.2.9 Bike/Pedestrian Bridge

The proposed bike/pedestrian bridge would be suspended from the superstructure of one of the bridges over the river. The bike/pedestrian bridge is approximately 686 feet long and approximately 13.8 feet wide. Construction of the bike/pedestrian bridge would not require any in-water work, vegetation removal or increase of new impervious surface.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

Within the Umpqua watershed, NOAA Fisheries listed the OC coho salmon as threatened under the ESA on August 10, 1998 (63 FR 42587). Protective regulations were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422).

OC coho salmon are known to spawn and rear in the Umpqua watershed. Adult coho salmon enter the Umpqua River in late September and spawn from October through January, with the majority of spawning activity occurring in small, low gradient tributaries. Coho salmon use the South Umpqua River within the project area primarily as a migration corridor. The downstream migration of coho salmon smolts typically occurs from early February through May, but may extend into June. Due to location of the project, OC coho salmon are not expected to be within the project area during the in-water work period (June 15 to September 15).

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps of the consultation regulations combined with the Habitat Approach (NMFS 1999): (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species and whether the action is consistent with the available recovery strategy; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or destroy or adversely modify critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with cumulative effects when added to the environmental baseline, is likely to jeopardize the ESA-listed species or result in the destruction or adverse modification of critical habitat. If either or both are found, NOAA Fisheries will identify reasonable and prudent alternatives for the action that avoid jeopardy or destruction or adverse modification of critical habitat.

2.1.3 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed coho salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list OC coho salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for OC coho salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and holding in the action area. The current status of the OC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The South Umpqua River serves as an adult and juvenile migration corridor, as well as juvenile rearing habitat.

2.1.4 Environmental Baseline

The current range-wide status of the identified ESU may be found in Nickelson *et al.* (1992) and Weitkamp *et. al* (1995). The identified action would occur within the range of OC coho salmon. The action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site, and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activity includes the immediate area where the I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project would occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the channel and adjacent riparian areas approximately 1500 feet upstream and downstream of the project site. Temporary indirect effects (disruption of primary productivity and food resources), and potential direct effects (sediment, pollutant discharge and hydraulics) to the South Umpqua River would be caused by the in-water work.

The dominant land use in the South Umpqua watershed is residential, private agriculture, forestry, and recreation. The South Umpqua River is water-deficient, primarily due to the seasonal pattern of rainfall and the demand for water for residential and agricultural irrigation. The Oregon Department of Environmental Quality (ODEQ) has listed the South Umpqua River on their 303(d) List of Water Quality Limited Water Bodies (303(d) list). The ODEQ-listed water quality problems identified within the project area include biological criteria, dissolved oxygen (May to October), periphyton (summer), pH (summer), temperature (summer), and fecal coliform (ODEQ 1999).

Based on the best available information regarding the current status of OC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of OC coho salmon are not currently being met. Degraded habitat, resulting from agricultural practices, forestry practices, road building, and residential construction indicate that many aquatic habitat indicators are not properly functioning within the Umpqua River watershed. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of OC coho salmon.

2.1.5 Analysis of Effects

The following proposed actions may adversely affect OC coho salmon:

Construction Equipment
Accidental release of fuel, oil, and other contaminants may occur. Operation of back-hoes, excavators, cranes, and other equipment requires the use of fuels, lubricants, *etc.*, which, if spilled into a waterbody channel, or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and both target and non-target riparian vegetation (Spence *et al.* 1996). To minimize the potential of pollutants entering the waterway, construction equipment, materials and refueling would be staged at least 150 feet from the OHWM.

Pile Removal
NOAA Fisheries expects that there will be short-term effects to OC coho salmon resulting from pile removal. Timing of the pile removal would occur during the designated in-water work period. The short-term effects associated with pile removal will be increases in sedimentation and turbidity and displacement of coho salmon.

Contaminated Water
Contaminated water will be generated from the construction of both the temporary work bridge, falsework platforms and the new bridges. Contaminated water, especially water with a high or low pH, has the potential to injure or kill fish. Contaminated water is defined as water with an increase in turbidity that is equal to or greater than 10% of background levels and/or water with a pH greater than or less than one point of background levels. Contaminated water generated during construction will be contained and is not expected to have a measurable impact.

Water Quality Stormwater Effects
Due to an increase in new impervious surface, the potential exists for an increase in runoff from impervious surfaces. However, the proposed stormwater runoff treatment criteria would offset any potential adverse effects to water quality as a result of the proposed action. The proposed stormwater treatment stated within the BA would require all stormwater to be routed to the end of the bridges, where it would be treated in a manner that would likely result in a decrease of pollutants to the South Umpqua River.

Sedimentation
Potential sedimentation impacts to OC coho salmon from the proposed actions include both

direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting from construction. Potential indirect effects include behavioral changes resulting from elevated turbidity levels (Berg and Whitman *et al.* 1982, Gregory 1988).

The influences of suspended sediment and turbidity to fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorus fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish is the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters by salmonids may be one of the most significant effects of suspended sediments (DeVore *et al.* 1980, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbidity plumes (Lloyd 1987, Scannell 1988). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a documented positive effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorus fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly-emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill-flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine, redeposited sediments also have

the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). Because the potential for turbidity should be localized and brief, and the potential for fish presence is minimal, the probability of direct mortality is negligible.

Construction-related effects necessary to complete the proposed action would be minimized by implementation of effective erosion and pollution control measures, and completing all work within the OHWM during the approved in-water work period.

Work Area Isolation and Fish Removal

Construction of the work bridge and falsework platform footings will require work area isolation from the flowing water. Fish removal activities will be in accordance with NOAA Fisheries' fish handling guidelines. Any ESA-listed fish removed from the isolated work area will experience high stress with the possibility of up to a 5% delayed mortality rate, depending on the rescue method.

Work area isolation can result in a loss of aquatic invertebrates due to dewatering or changes in water quality within the contained area. In addition, sediment-laden water created within isolated work areas could escape, resulting in impacts to the aquatic environment downstream of the project site.

The adverse effects of these activities on OC coho salmon and their riparian and aquatic habitats will be avoided or minimized by carrying out the conservation measures and construction approaches described in the BA (pages 20-28).

2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area is defined as the South Umpqua River, 1500 feet upstream and downstream of the Shady Bridges.

Many actions occur within the Umpqua River watershed, and within the action area itself. Between 1990 and 2000, the human population in Douglas County increased by 6.2%.[1] Thus, NOAA Fisheries assumes that future private and state actions would continue within the action

[1] U.S. Census Bureau, State and County Quickfacts, Douglas County, Oregon. Available at http://quickfacts.census.gov/qfd/states/41/41019.html

area, but at increasingly higher levels as population density increases. NOAA Fisheries assumes that future Federal transportation projects in the Umpqua River watershed would be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

2.1.7 Conclusion

NOAA Fisheries determines that, when the effects of the COE's proposed action, the permitting of the I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project, are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of OC coho salmon. These conclusions are based on the following considerations: (1) All in-water work and other construction activities within the OHWM elevation would take place according to the in-water work period to protect fish and wildlife resources; (2) work area isolation (including use of NOAA Fisheries' guidelines for proper fish handling) and other conservation measures will be in place to avoid or minimize adverse affects to water quality; (3) water quality treatment and detention will be provided for the stormwater within the project area; and (4) disturbance to the South Umpqua River will be minimized by following conservation measures outlined in the BA. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions within the action area.

2.1.8 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." [16 USC 1532(19)] Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by

significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering." [50 CFR 222.102] Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." [50 CFR 17.3] Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." [50 CFR 402.02] The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

2.2.1 Amount and Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of OC coho salmon because of detrimental effects from sediment pulses, increased pollutant levels, and the slight possibility of juvenile presence in the vicinity of the project site during in-water work. NOAA Fisheries expects the possibility exists for incidental take of up to 20 juvenile coho salmon during work area isolation and handling of fish. Take resulting from the effects of other project actions covered by this Opinion is largely unquantifiable in the short term, and not expected to be measurable in the long term. The extent of the take is limited to the action area.

2.2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The COE has the continuing duty to regulate the activities covered in this incidental take statement. If the COE fails to require ODOT to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The I-5 Overcrossing: South Umpqua River and OR 99 (Shady) Bridges Replacement Project includes a set of "conservation measures" designed to minimize take of ESA-listed species. These are described on pages 20 to 28 of the June, 2003 BA. Specific measures for in-water and bank work, clearing and grubbing, bridge rehabilitation, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are also included.

NOAA Fisheries believes that the following reasonable and prudent measures, along with the conservation measures described in the BA, are necessary and appropriate to minimize the likelihood of take of ESA-listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The COE shall:

1. Ensure completion of a comprehensive monitoring and reporting program to confirm this Opinion is meeting its objective of minimizing take from permitted activities.

2. Avoid or minimize incidental take from construction-related activities by applying permit conditions that require construction, operation and maintenance actions with minimum harm to aquatic and riparian systems.

3. Minimize the likelihood of incidental take from in-water work by ensuring that in-water work areas are isolated from flowing water.

4. Minimize the amount and extent of take from loss of instream habitat by implementing measures to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream functions.

5. Minimize the amount and extent of take from stormwater impacts and altered stream hydraulics by implementing measures to treat water and limit fill within the 100-year floodplain.

2.2.3 Terms and Conditions

1. To implement reasonable and prudent measure #1 (monitoring), the COE shall ensure that:
   a. Salvage notice. The following notice is included as a permit condition.

> NOTICE. If a sick, injured or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at 360.418.4246. The finder must take care in handling of sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

   b. Written planning requirements. Before beginning any work below bankfull elevation,[2] the permittee will provide a copy of the written plans for site restoration, compensatory mitigation, pollution and erosion control, bridge

[2] 'Bankfull elevation' means the bank height inundated by a 1.5 to 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

demolition and stormwater management, to the Oregon Office of NOAA Fisheries at the following address. Plan requirements are described below.

Oregon State Director
Habitat Conservation Division
National Marine Fisheries Service
Attn: 2003/00900
525 NE Oregon Street
Portland, OR 97232

c. Implementation monitoring report required. The permittee submits an implementation monitoring report to the COE and to NOAA Fisheries, at the address below, within 120 days of completing all in-water work. The monitoring report will describe the permittee's success meeting his or her permit conditions.

d. Implementation monitoring report contents. Each monitoring report will include the following information.

i. Project identification
   (1) Permittee name, permit number, and project name.
   (2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
   (3) COE contact person.
   (4) Starting and ending dates for work completed.

ii. Habitat conditions. Photos of habitat conditions at the project and any compensation site or sites, before, during, and after project completion.[3]
   (1) Include general views and close-ups showing details of the project and project area, including pre and post construction.
   (2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Site restoration and compensatory mitigation.
   (1) The name and address of the party(s) responsible for meeting each component of the site restoration and compensatory mitigation plan.
   (2) Performance standards for determining compliance.
   (3) Any other pertinent requirements such as financial assurances, real estate assurances, monitoring programs, and the provisions for short and long-term maintenance of the restoration or mitigation site.
   (4) Planting composition and density.

[3] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(5) A plan to inspect and, if necessary, replace failed plantings for five years.

(6) A provision for COE certification that all action necessary to carry out each component of the restoration or mitigation plan is completed, and that the performance standards are achieved.

iv. Project data.

(1) Work cessation. Dates work ceased due to high flows, if any.

(2) Fish screen. Evidence of compliance with NOAA Fisheries' fish screen criteria.

(3) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.

(4) Pilings.

(a) Number and type of pilings removed, including the number of pilings (if any) that broke during removal.

(b) Number, type, and diameter of any pilings installed (e.g., untreated wood, treated wood, hollow steel).

(c) Description of how pilings were installed and any sound attenuation measures used.

(5) Site preparation.

(a) Total cleared area – riparian and upland.

(b) Total new impervious area.

(6) Isolation of in-water work area, capture and release.

(a) Supervisory fish biologist – name and address.

(b) Methods of work area isolation and take minimization.

(c) Stream conditions before, during and within one week after completion of work area isolation.

(d) Means of fish capture.

(e) Number of fish captured by species.

(f) Release site and condition of all fish released.

(g) Any incidence of observed injury or mortality of listed species.

(7) Road construction, repairs and improvements. The justification for any new permanent road crossing design (i.e., road realignment, full span bridge, streambed simulation, or no-slope design culvert).

(8) Site restoration. Photo or other documentation that site restoration performance standards were met.

(9) Compensatory mitigation. The same elements apply as for monitoring site restoration.

e. Annual report on site restoration and compensatory mitigation monitoring. In addition to the 120-day implementation report, the permittee will submit an annual report to the COE and NOAA Fisheries by December 31 that includes the date of each visit to a restoration site or mitigation site, site conditions on that date, and any corrective action taken as a result of that visit. Reporting will

continue from year to year until the COE certifies that site restoration or compensatory mitigation performance standards have been met.

f. Post construction impacts. The COE/ODOT shall assess the project's impacts, temporary and permanent, and compare them to the impacts assessed in the 2003 BA. This written assessment will be provided to NOAA Fisheries for review. If the actual impacts exceed those outlined in the BA then the COE/ODOT will provide additional mitigation to offset those impacts.

g. Reinitiation contact. To reinitiate consultation, contact the Oregon Habitat Branch of NOAA Fisheries, at the address above.

2. To implement reasonable and prudent measure #2 (construction-related activities), the COE shall:

a. Minimum area. Confine construction impacts to the minimum area necessary to complete the project.

b. Preconstruction meeting. ODOT will arrange a pre-construction meeting with NOAA Fisheries and the contractor before commencement of project activities.

c. Preconstruction activity. Complete the following actions before significant[4] alteration of the project area.

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary. Survey and mark the OHWM at the project site before commencement of work.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite.

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[5]).

(2) An oil-absorbing, floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls will be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

d. Site preparation. Conserve native materials for site restoration.

i. If possible, leave native materials where they are found.

ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.

[4] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

[5] When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

iii. Stockpile any large wood[6], native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

e. Earthwork. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible.
   i. Site stabilization. Stabilize all disturbed areas, including obliteration of temporary roads, following any break in work unless construction will resume within four days.
   ii. Source of materials. Obtain boulders, rock, woody materials and other natural construction materials used for the project outside the riparian area.

f. Cessation of work. Cease project operations under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

g. Timing of in-water work. Complete all work below the OHWM between June 15 and September 15, unless otherwise approved in writing by NOAA Fisheries. ODOT shall notify NOAA Fisheries at least one week before the start of work below the OHWM.

h. Fish screens. Install, operate and maintain a fish screen according to NOAA Fisheries' fish screen criteria[7] on each water intake used for project construction, including pumps used to isolate an in-water work area. Screens for water diversions or intakes that will be used for irrigation, municipal or industrial purposes, or any use besides project construction are not authorized.

i. Fish passage. Provide passage for any adult or juvenile salmonid species present in the project area during construction, unless otherwise approved in writing by NOAA Fisheries, and after construction for the life of the project. Upstream passage is not required during construction if it did not previously exist.

j. Pollution and Erosion Control Plan. Prepare and carry out a written pollution and erosion control plan to prevent pollution caused by surveying or construction operations. Submit a copy of the written plan to the COE and to the Oregon Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.

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[6] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

[7] National Marine Fisheries Service, *Juvenile Fish Screen Criteria* (revised February 16, 1995) and *Addendum: Juvenile Fish Screen Criteria for Pump Intakes* (May 9, 1996) (guidelines and criteria for migrant fish passage facilities, and new pump intakes and existing inadequate pump intake screens) (http://www.nwr.noaa.gov/1hydrop/hydroweb/ferc.htm).

i. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

(1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

(2) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, staging areas, and roads being decommissioned.

(3) Practices to confine, remove and dispose of excess concrete, cement, grout, and other mortars or bonding agents, including measures for washout facilities.

(4) A description of any regulated or hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

(5) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(6) Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately.[8]

(1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

k. Construction discharge water. Treat all discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) as follows.

i. Water quality. Design, build and maintain facilities to collect and treat all construction discharge water, including any contaminated water produced by drilling, using the best available technology applicable to site

[8] 'Working adequately' means that project activities do not increase ambient stream turbidity by more than 10% above background 100 feet below the discharge, when measured relative to a control point immediately upstream of the turbidity causing activity.

conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed 4 feet per second, and the maximum size of any aperture may not exceed one inch.

iii. Pollutants. Do not allow pollutants including green concrete, contaminated water, silt, welding slag, sandblasting abrasive, or grout cured less than 24 hours to contact any wetland or the OHWM.

l. Piling removal. If a temporary or permanent piling will be removed, the following conditions apply.

i. Dislodge the piling with a vibratory hammer.

ii. Once loose, place the piling onto an appropriate dry storage site.

iii. Fill the holes left by each piling with clean, native sediments, whenever feasible.

m. Temporary access roads. All temporary access roads will be constructed as follows.

i. Existing ways. Use existing roadways and travel paths whenever possible, unless construction of a new way would result in less habitat take.

ii. Steep slopes. Temporary roads built mid-slope or on slopes steeper than 30% are not authorized.

iii. Minimizing soil disturbance and compaction. Minimize soil disturbance and compaction whenever a new temporary road is necessary within 150 feet[9] of a stream, water body or wetland by clearing vegetation to ground level and placing clean gravel over geotextile fabric, unless otherwise approved in writing by NOAA Fisheries.

iv. Temporary stream crossings.

(1) Minimize the number of temporary stream crossings.

(2) Design temporary road crossings as follows.

(a) Survey and map any potential spawning habitat within 300 feet downstream of a proposed crossing.

(b) Do not place a stream crossing at known or suspected spawning areas, or within 300 feet upstream of such areas if spawning areas may be affected.

(c) Design the crossing to provide for foreseeable risks (*e.g.*, flooding and associated bedload and debris, to prevent the diversion of streamflow out of the channel and down the road if the crossing fails).

(d) Vehicles and machinery will cross riparian areas and

[9] Distances from a stream or water body are measured horizontally from, and perpendicular to, the bankfull elevation, the edge of the channel migration zone, or the edge of any associated wetland, whichever is greater. 'Channel migration zone' means the area defined by the lateral extent of likely movement along a stream reach as shown by evidence of active stream channel movement over the past 100 years (e.g., alluvial fans or floodplains formed where the channel gradient decreases, the valley abruptly widens, or at the confluence of larger streams).

streams at right angles to the main channel wherever possible.

v. Obliteration. When the project is complete, obliterate all temporary access roads that will not be in footprint of a new bridge or other permanent structure, stabilize the soil, and revegetate the site. Abandon and restore temporary roads in wet or flooded areas by the end of the in-water work period.

n. Bridge Demolition. A bridge demolition plan must be approved by NOAA Fisheries before removal of the existing structures.

o. Bridge Containment. The work bridges will have containment measures in place that minimizes any potential of petrochemicals or hazardous materials from entering the river.

i. The decking of the work bridge shall be constructed to self-contain petrochemicals and hazardous materials.

ii. The work bridges and the containment structure will be maintained to preserve containment integrity throughout the term of the project.

p. Heavy Equipment. Restrict use of heavy equipment as follows:

i. Choice of equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally sized, low ground pressure equipment).

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows:

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on site.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area placed 150 feet or more from any stream, waterbody or wetland, unless otherwise approved in writing by NOAA Fisheries, except as stated below.

(a) Fuel storage locations within 150 feet of the OHWM shall have containment measures in place that meets or exceeds 100% containment.

(b) No auxiliary fuel tanks are stored within 150 feet of the OHWM.

(3) No hazardous materials will be stored on the work bridge.

(4) Hazardous materials stored within 150 feet of the OHWM shall have containment measures in place that meets or exceeds 100% containment.

(5) Inspect all vehicles operated within 150 feet of any stream, waterbody or wetland daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by COE or NOAA Fisheries.

(6) Before operations begin and as often as necessary during operation, steam clean all equipment that will be used below bankfull elevation until all visible external oil, grease, mud, and other visible contaminates are removed.

(7) Diaper all stationary power equipment (*e.g.*, generators, cranes, stationary drilling equipment) operated within 150 feet of any stream, waterbody or wetland to prevent leaks, unless suitable containment is provided to prevent potential spills from entering any stream or waterbody.

q. Site restoration. Prepare and carry out a written site restoration plan as necessary to ensure that all streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows. Submit a copy of the written site restoration plan to the COE and to the Oregon Office of NOAA Fisheries, at the address above, before beginning work below bankfull elevation.

i. General considerations.

(1) Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (*e.g.*, large woody debris), channel conditions, flows, watershed conditions and other ecosystem processes that form and maintain productive fish habitats.

(2) Streambank shaping. Restore damaged streambanks to a natural slope, pattern and profile suitable for establishment of permanent woody vegetation, unless precluded by pre-project conditions (*e.g.*, a natural rock wall).

(3) Revegetation. Replant area requiring revegetation before the first April 15 following construction. Use a diverse assemblage of species native to the project area or region, including grasses, forbs, shrubs and trees. Noxious or invasive species may not be used.

(4) Pesticides. Take of ESA-listed species caused by any aspect of pesticide use is not included in the exemption to the ESA take prohibitions provided by this incidental take statement. Pesticide use must be evaluated in an individual consultation, although mechanical or other methods may be used to control weeds and unwanted vegetation.

(5) Fertilizer. Do not apply surface fertilizer within 50 feet of any stream channel.

(6) Fencing. Install fencing as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

ii. Plan contents. Include each of the following elements.

(1) Baseline information. This information may be obtained from existing sources (*e.g.*, land use plans, watershed analyses, subbasin plans), where available.

(a) A functional assessment of adverse effects, *i.e.*, the

location, extent and function of the riparian and aquatic resources that will be adversely affected by construction and operation of the project.

(b) The location and extent of resources surrounding the restoration site, including historic and existing conditions.

(2) Goals and objectives. Restoration goals and objectives that describe the extent of site restoration necessary to offset adverse effects of the project, by aquatic resource type.

(3) Performance standards. Use these standards to help design the site restoration plan and to assess whether the restoration goal is met. While no single criterion is sufficient to measure success, the intent is that these features should be present within reasonable limits of natural and management variation.

(a) Bare soil spaces are small and well dispersed.

(b) Soil movement, such as active rills or gullies and soil deposition around plants or in small basins, is absent or slight and local.

(c) If areas with past erosion are present, they are completely stabilized and healed.

(d) Plant litter is well distributed and effective in protecting the soil with few or no litter dams present.

(e) Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.

(f) Vegetation structure is resulting in rooting throughout the available soil profile.

(g) Plants have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.

(h) High impact conditions confined to small areas necessary access or other special management situations.

(i) Streambanks have less than 5% exposed soils with margins anchored by deeply rooted vegetation or coarse-grained alluvial debris.

(j) Few upland plants are in valley bottom locations, and a continuous corridor of shrubs and trees provide shade for the entire streambank.

(4) Work plan. Include a written work plan as part of the site restoration plan with sufficient detail to include a description of the following elements, as applicable.

(a) Boundaries for the restoration area.

(b) Restoration methods, timing, and sequence.

(c) Water supply source, if necessary.

(d) Woody native vegetation appropriate to the restoration

site.[10] This must be a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs and trees. This may include allowances for natural regeneration from an existing seed bank or planting.

(e) A plan to control exotic invasive vegetation.

(f) Elevation(s) and slope(s) of the restoration area to ensure they conform with required elevation and hydrologic requirements of target plant species.

(g) Geomorphology and habitat features of stream or other open water.

(h) Site management and maintenance requirements.

(5) Five-year monitoring and maintenance plan.

(a) A written schedule to visit the restoration site annually for 5 years or longer as necessary to confirm that the performance standards are achieved. Despite the initial 5-year planning period, site visits and monitoring will continue from year-to-year until the COE certifies that site restoration performance standards have been met.

(b) During each visit, inspect for and correct any factors that may prevent attainment of performance standards (*e.g.*, low plant survival, invasive species, wildlife damage, drought).

(c) Keep a written record to document the date of each visit, site conditions and any corrective actions taken.

3. To implement reasonable and prudent measure #3 (isolation of in-water work area) the COE shall ensure that:

a. Work area isolation. During in-water work (work within the OHWM), if the project involves either significant channel disturbance or use of equipment within the wetted channel, ensure that the work area is well isolated from the active flowing stream within a coffer dam (constructed of sand bags, sheet pilings, inflatable bags, *etc.*) or similar structure, to minimize the potential for sediment entrainment. Furthermore, no ground- or substrate-disturbing action will occur within the OHWM 150 feet upstream of potential spawning habitat as measured at the thalweg without isolation of the work area from flowing waters. After the coffer dam is in place, any fish trapped in the isolation pool will be removed by a permitted ODOT and/or ODFW biologist before de-watering, using ODFW-approved methods.

i. Coffer dams. All coffer dams will be of sufficient height to not be inundated during high flows.

ii. Water intake structures. Any water intake structure authorized under this

[10] Use references sites to select vegetation for the mitigation site whenever feasible. Historic reconstruction, vegetation models, or other ecologically-based methods may also be used as appropriate.

Opinion must have a fish screen installed, and operated and maintained in accordance with NOAA Fisheries' fish screen criteria.

(1) Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow before returning to the creek. Discharge will occur so that it does not cause erosion.

(2) Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.

iii. Fish Salvage. Before and intermittently during pumping to isolate an in-water work area, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

(1) The entire capture and release operation must be conducted or supervised by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.

(2) Do not use electrofishing if water temperatures exceed 18°C.

(3) If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines.[11]

(4) Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

(5) Transport fish in aerated buckets or tanks.

(6) Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.

(7) Do not transfer ESA-listed fish to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

(8) Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.

(9) Allow NOAA Fisheries or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.

4. To implement reasonable and prudent measure #4 (minimize loss of instream habitat), COE shall ensure that:

a. The distance between existing bridge approach fill and the 100-year flood plain or OHWM (whichever is closer to the existing fill) will not be reduced.

b. The amount of fill within the flood plain will be minimized.

c. Boundaries of the clearing limits associated with site access and construction will

[11] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

be flagged to prevent ground disturbance of riparian vegetation, wetlands, and other sensitive sites beyond the flagged boundary.

d. During excavation, native streambed material will be stockpiled out of the two-year flood plain for later use in back-filling the trenches used to construct coffer dams.

e. During project design ODOT will work to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Riprap will not be "end-dumped" within the wetted channel.

f. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.

g. Measures will be taken to prevent any debris from falling within the boundaries of the OHWM. Any material that falls within this area will be removed in a manner that has a minimum impact to the riparian area, streambed and water quality.

5. To implement reasonable and prudent measure # 5 (new impervious surface and stormwater management), the COE shall ensure that:

a. All storm water runoff from any road or bridge built pursuant to a permit issued under this Opinion must be managed to ensure that it will not result in a change in the existing hydraulic conditions or an increase of pollutants to the receiving water.

b. Any project that will produce new surfaces or land use conversions that retard the entry of water into the soil must control the quantity and quality of the resulting stormwater runoff for the life of the project.

c. Stormwater must be infiltrated or dispersed onsite to the maximum extent possible without causing flooding or erosion impacts.

d. When stormwater runoff must be discharged into a freshwater system, the following requirements apply.

   i. The area must be drained by a conveyance system comprised entirely of manufactured elements (*e.g.*, pipes, ditches, outfall protection) that extends to the OHWM of the receiving water.

   ii. Any erodible elements of this system must be adequately stabilized to prevent erosion.

   iii. Surface water from the area must not be diverted from or increased to an existing wetland, stream or near-shore habitat sufficient to cause a significant adverse effect.

   iv. Runoff treatment facilities must be designed, built and maintained to collect runoff from the project site using the best available technology applicable to the site conditions. Treatment must be provided to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

3. MAGNUSON-STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: 'Waters' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; 'substrate' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; 'necessary' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH.

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH.

- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed in section 1.2. The action area is defined as the South Umpqua River 1500 feet upstream and downstream of the Shady Bridges. This area has been designated as EFH for various life stages of coho salmon and chinook salmon.

3.5 Effects of Proposed Action

As described in detail in section 2.1.5, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include increases in turbidity, disturbance of the beds and banks of the river, removal of riparian vegetation, and the potential for pollutants to enter the water.

3.6 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for coho salmon and chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the COE and all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2.2 and 2.2.3 are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the MSA(section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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